

ENABLING HYDROLOGICAL INTERPRETATION OF MONTHLY TO SEASONAL PRECIPITATION FORECASTS IN THE CORE NAM REGION

Figures

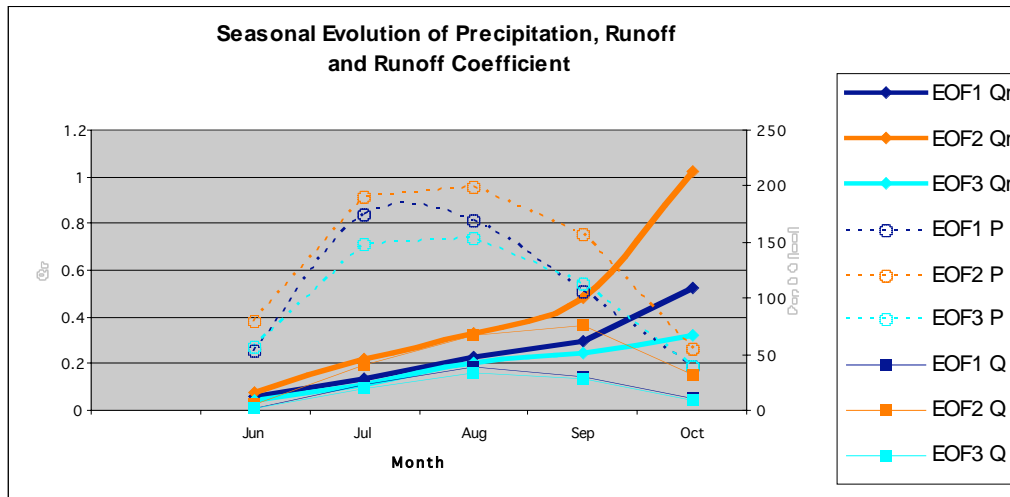


Figure 1. Seasonal evolution of precipitation (P), runoff (Q), and runoff coefficient (Qr). There are substantial regional differences in the extent to which basin storages are filled during the monsoon period (the conditioning process). This conditioning is most pronounced in the southernmost region (EOF2) as evidenced by the seasonal change in the runoff coefficient (Qr) (See Fig. 2). Regions are EOF1-north, EOF2-south, and EOF3-east.

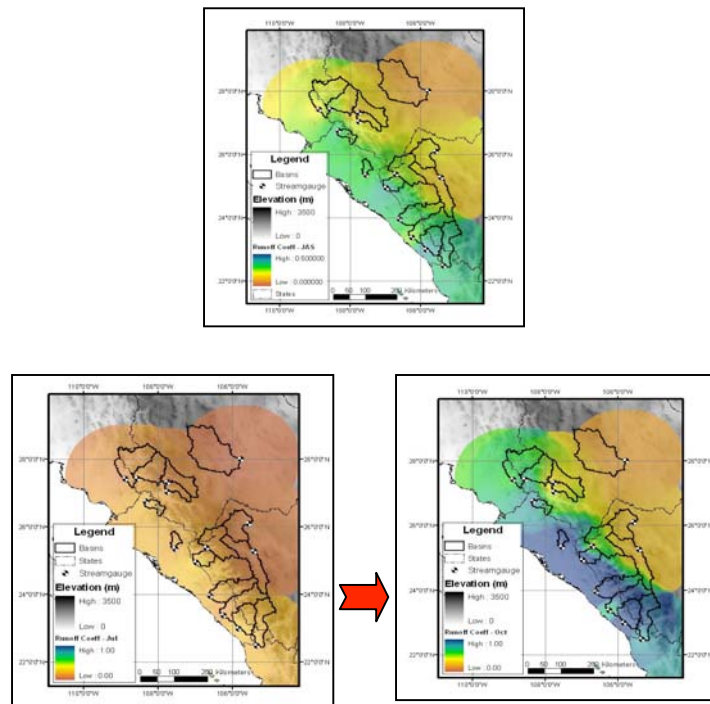


Figure 2. Spatially interpolated maps of basin runoff coefficients (Q/P) for the months July, August, and September, and for July and October separately.

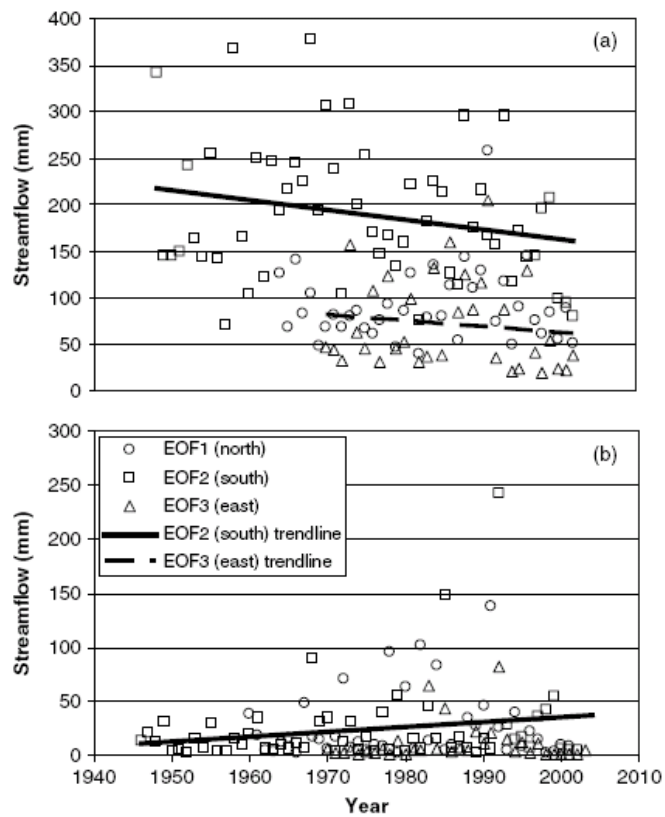


Figure 3. Time series of streamflow volume for July to September and January to March. Linear trends are plotted for those series for which the trend is significant at the 95% level.

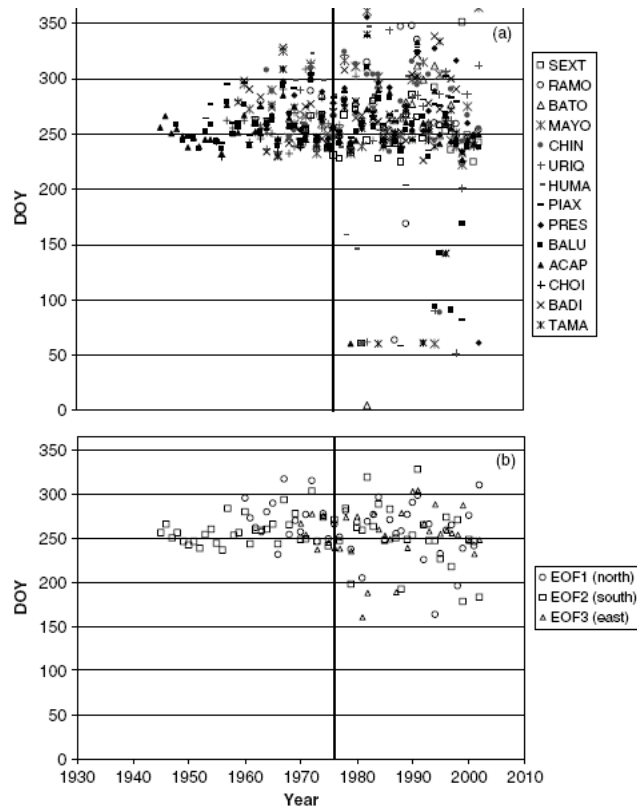


Figure 4. Time series of the Julian date of the center of streamflow volume (a) individual headwater catchments in northwest Mexico and (b) EOF-regionalized values. The solid black vertical line denotes the shift in climate in 1976-77.

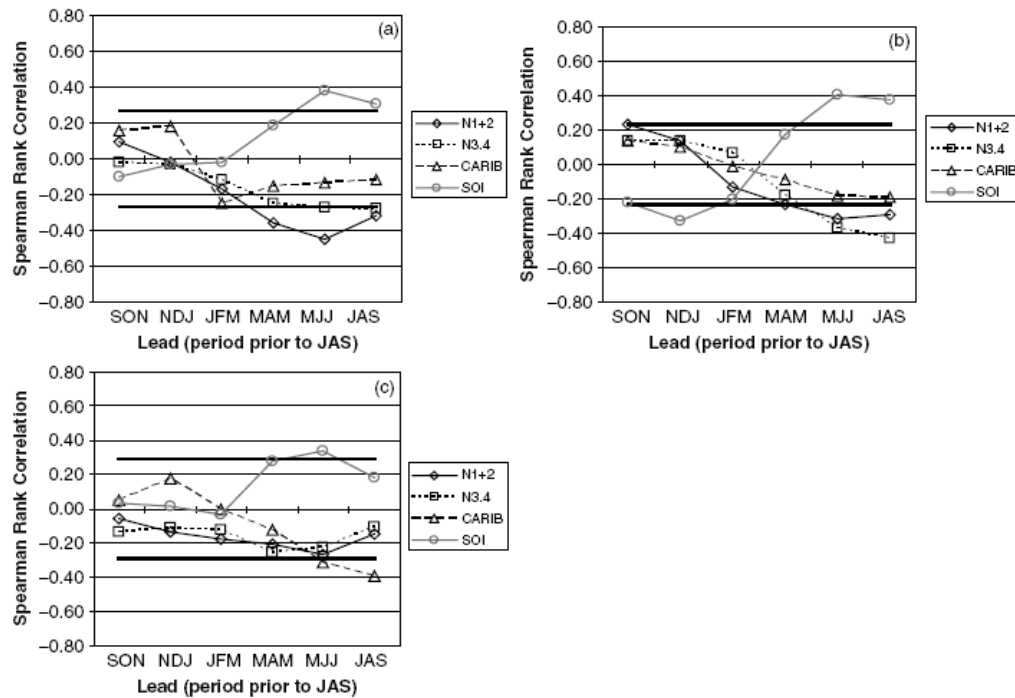


Figure 5. Standardized anomaly correlograms between selected SST and SLP indices and (a) EOF1, (b) EOF2 and (c) EOF3 streamflow volumes. Spearman rank correlations calculated from the respective periods of record for each streamflow EOF region. Solid horizontal lines indicates the 95% significance level of correlation.

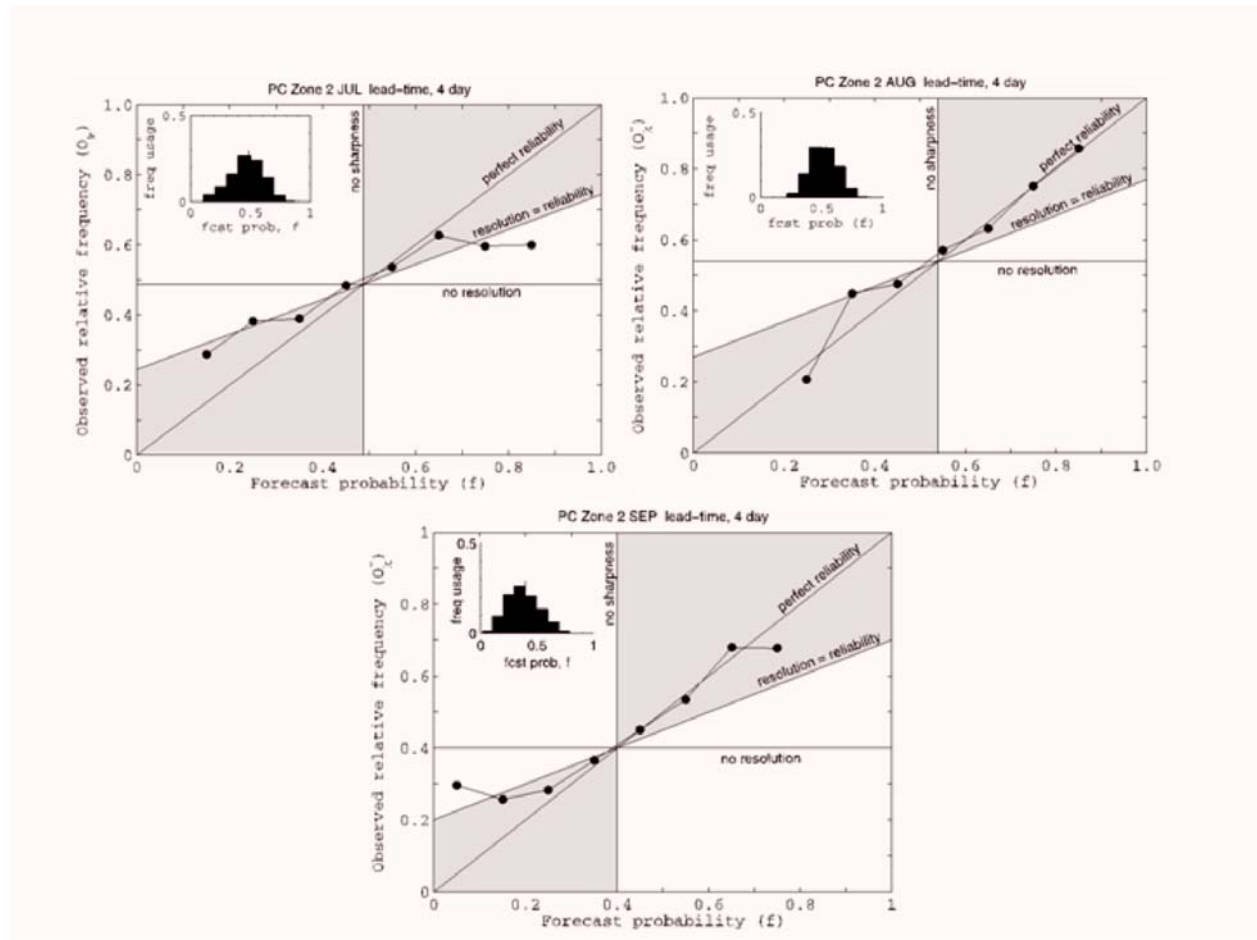


Figure 6: Southern SMO regional composite reliability diagrams for warm season precipitation (July, August and September) at 4-day forecast lead time. Inset histograms indicate frequency of use of the forecasts. Data points falling within shaded areas indicate skillful ensemble forecasts at the given event probability or frequency.

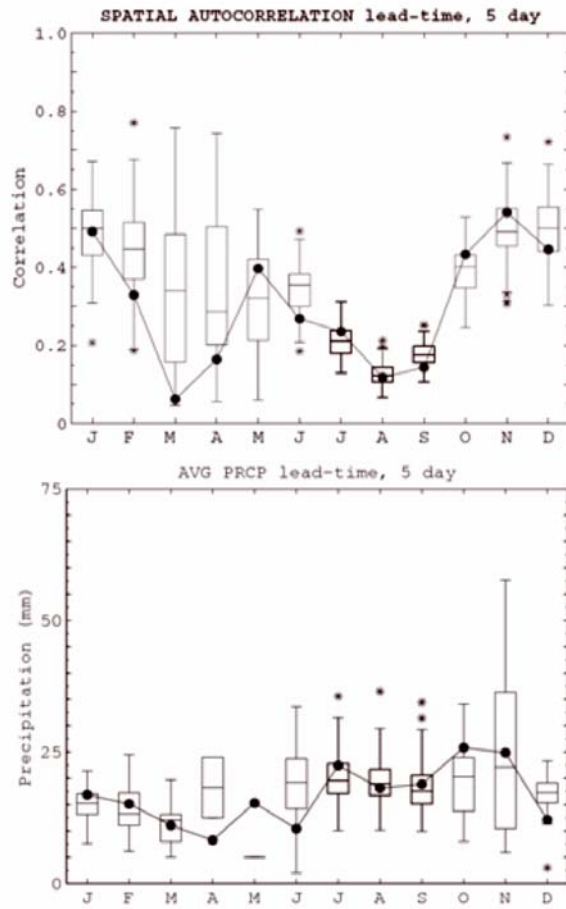


Figure 7: Box plots of (a) spatial autocorrelation and (b) total monthly precipitation from the 105 ensemble members for selected stations in the principal component basins. The boxes in these plots indicate the interquartile range of the simulations, and the whiskers show the 5th and 95th percentile of the simulations, while the asterisks indicate values outside this range. The horizontal lines within the box indicate the median value, and the solid lines join values of the statistic from the observed data.